in them. And here I ſhall endeavour to ſhew by what compoſition all kind of compound colours are made, and how there is no colour in the world but may be made from the various degrees of theſe two colours, together with the intermixtures of *Black* and *White*.

And this being ſo, as I ſhall anon ſhew, it ſeems an evident argument to me, that all colours whatſoever, whether in fluid or ſolid, whether in very tranſparent or ſeemingly *opacous*, have the ſame efficient cauſe, to wit, ſome kind of *refraction* whereby the Rays that proceed from ſuch bodies, have their pulſe *obliquated* or confus'd in the manner I explicated in the former *Section*; that is, a *Red* is caus'd by a duplicated or confus'd pulſe, whoſe ſtrongeſt pulſe precedes, and a weaker follows: and a *Blue* is caus'd by a confus'd pulſe, where the weaker pulſe precedes, and the ſtronger follows. And according as theſe are, more or leſs, or variouſly mixt and compounded, ſo are the *ſenſations*, and conſequently the *phantaſms* of colours *diverſified*.

To proceed therefore; I ſuppoſe, that all tranſparent colour'd bodies, whether fluid or ſolid, do conſiſt at leaſt of two parts, or two kinds of ſubſtances, the one of a ſubſtance of a ſomewhat differing *refraction* from the other. That one of theſe ſubſtances which may be call'd the *tinging* ſubſtance, does conſiſt of diſtinct parts, or particles of a determinate bigneſs which are *diſſeminated*, or diſpers'd all over the other: That theſe particles, if the body be equally and uniformly colour'd, are evenly rang'd and diſpers'd over the other contiguous body; That where the body is deepeſt ting'd, there theſe particles are rang'd thickeſt; and where 'tis but faintly ting'd, they are rang'd much thinner, but uniformly. That by the mixture of another body that unites with either of theſe, which has a differing refraction from either of the other, quite differing effects will be produc'd, that is, the *conſecutions* of the confus'd pulſes will be much of another kind, and conſequently produce other *ſenſations* and *phantaſms* of colours, and from a *Red* may turn to a *Blue*, or from a *Blue* to a *Red*, &c.

Now, that this may be the better underſtood, I ſhall endeavour to explain my meaning a little more ſenſible by a *Scheme*: Suppoſe we therefore in the ſeventh *Figure* of the ſixth *Scheme*, that A B C D repreſents a Veſſel holding a ting'd liquor, let I I I I I, &c. be the clear liquor, and let the tinging body that is mixt with it be E E, *&c.* F F, *&c.* G G, *&c.* H H, *&c.* whoſe particles (whether round, or ſome other determinate Figure is little to our purpoſe) are firſt of a determinate and equal bulk. Next, they are rang'd into the form of *Quincunx*, or *Equilaterotriangular* order, which that probably they are ſo, and why they are ſo, I ſhall elſewhere endeavour to ſhew. Thirdly, they are of ſuch a nature, as does either more eaſily or more difficultly tranſmit the Rays of light then the liquor; if more eaſily, a *Blue* is generated, and if more difficultly, a *Red* or *Scarlet*.

And firſt, let us ſuppoſe the tinging particles to be of a ſubſtance that does more *impede* the Rays of light, we ſhall find that the pulſe or wave of light mov'd from A D to B C, will proceed on, through the containing *medium* by the pulſes or waves K K, L L, M M, N N, O O; but

becauſe ſeveral of theſe Rays that go to the conſt
will be ſlugged or ſtopped by the tinging particle
there ſhall be a *ſecundary* and weak pulſe that ſhall
ly P P which will be the weaker: firſt, becauſe i
fractions in the impeding body; next, for that t
diſpers'd or confus'd by reaſon of the refraction in
whether *round* or *angular*; and this will be more
more cloſely examine any one particular tinging
Suppoſe we therefore A B in the eighth *Figure*
repreſent a tinging *Globule* or particle which has a
the liquor in which it is contain'd: Let C D be a pa
which is *propagated* through the containing *mediu*
little ſtopt or impeded by the *Globule*, and ſo by
paſt to E F that part of it which has been impeded
Globule, will get but to L M, and ſo that pulſe
gated through the *Globule*, to wit, L M, N O, P
behind the pulſes E F, G H, I K, *&c.*
Next, by reaſon of the greater impediment in A
gure, the Rays that paſs through it will be diſpers'd
ter'd. Whence C A and D B which before went *direc*
the refraction in A B, *diverge* and ſpread by A P, an
Rays do meet with more and more of theſe tin
way, by ſo much the more will the pulſe of ligh
the clearer pulſe, or that which has fewer refrac
deeper will the colour be, and the fainter the
through it; for not onely many Rays are reflecte
A B, but thoſe Rays that get through it are very mu
By this *Hypoheſis* there is no one experiment of
met with, but may be, I conceive, very rationabl
had I time to examine ſeveral particulars requiſite
of it, I might prove it more than probable, for all t
the changes and mixings of colours related in th
publiſhed by the *Incomparable* Mr. *Boyle*, and mult
I have obſerv'd, do ſo eaſily and naturally flow fro
I am very apt to think it probable, that they own
other *ſecundary* cauſe: As to inſtance in two or thr
twentieth Experiment, this *Noble Authour* has ſhew
purple-colour of *Violets*, may be turn'd into a *Gree*
and to a *Red* by *acid*; that is, a *Purple* conſiſts of tw
and a deep *Blue*; when the *Blue* is diluted, or alt
acid Salts, the *Red* becomes predominant, but whe
Alcalizate, and the *Blue* heightned, there is generat
Red diluted, is made a *Yellow*, and *Yellow* and *Blue*
Now, becauſe the *ſpurious* pulſes which cauſe a
one follow the clear pulſe, and the other preced
that thoſe *Saline* refracting bodies which do *dilute*
do deepen that of the other. And this will be

ROBERT HOOKE *Micrographia* LONDON, 1665 THE WARNOCK LIBRARY Octavo